



Leading change through Passive Radio Frequency Identification: Enabled Receipt

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In order to maximize efficiencies and speed the materiel receipt process, DLA Distribution, in conjunction with DLA headquarters, has developed a process utilizing passive radio frequency identification, or pRFID, that aims to reduce costs and improve service to the Warfighter.

By leveraging automatic identification technology, or AIT, in operations, all three arms of the supply chain: suppliers, distribution, and customers can benefit. Suppliers benefit through faster payment, having a customer focus, and leveraging new technologies. Distribution benefits through a faster receipt process, reduced costs, and more accurate information sharing. Final customers benefit through receiving orders at a faster pace and receiving more accurate orders.



A pRFID-enabled tote is diverted to a conveyor with a smart table and workstation.

Center of Excellence: Driving pRFID projects and technology

In 2008, DLA named the San Joaquin, Calif., distribution center as the Center of Excellence, or COE for three AIT projects. San Joaquin was the optimal location to test new technologies. “An excellent culture and a testing ground that encompassed all of the distribution functions from our depots around the globe provided the combination we needed to develop new AIT processes at San Joaquin,” said Denise Blanks, chief of DLA Distribution’s Distribution Operations Distribution Standard System Division.

The COE was established in January 2009 at DLA Distribution San Joaquin, Calif. Three projects began in the testing phase at that point. The first project, Fast Lane Receiving, later renamed to Passive Radio Frequency Enabled Receipt, or PRR, enables the use of vendor pRFID labels in the receiving process. The second project, Intra-depot Transportation, supports enhanced visibility between the mission side and the Containerization Consolidation Point, or CCP. The final project, Consolidation and Containerization Point Freight Terminal, reads pRFID labels throughout the warehouse, provides for increased visibility of items, reduces resource time for finding lost packages, and can reduce costs by utilizing newer technological reading devices, rather than multiple pRFID door portals.

The COE utilizes a three-phase approach to determine if a new AIT project is viable. In the planning and assessment phase, a pathway to success is determined through mapping processes, establishing baseline metrics, testing and evaluating, identifying proven capabilities, and planning for deployment. The second phase includes rapid deployment of already-proven concepts from the planning and assessment phase. Deployment is tailored

specifically for the implementation site. Processes are monitored, and benefits are realized at this point. The final phase includes information sharing with Department of Defense and other agencies, collaborating with vendors, and indentifying best practices across the government.

After a successful phase one, the PRR project is being deployed across the DLA Distribution enterprise.

The PRR process

The pRFID process begins before the package even arrives at DLA Distribution. First, DLA Distribution places an order with a vendor for items. The vendors then pack the items, provide document labels, and tag the shipment with pRFID labels.

Each pRFID enabled package is entered into a special website called Wide Area Work Flow, or WAWF. WAWF was developed by DLA for all vendors to enter Advance Shipment Notice, or ASN, which provides all background information on a shipment to DLA. Vendors enter ASNs into WAWF within one day of shipment, providing time for DLA Distribution to receive the shipment information prior to its arrival at a facility.

The Defense Automatic Addressing Shipment Center, or DAASC, which is part of DLA, receives the basic transactions that stem from WAWF, and converts the messages so they can be read and understood by the Distribution Standard System, or DSS. DSS is the system that DLA Distribution uses to manage all shipments.

Once a shipment arrives at DLA Distribution, the most important step is identifying which packages have pRFID labels, and which do not. First, each package is directed down a divert portal, and if a package contains a pRFID label,



A tote passes under a pRFID portal.

it is sent down a pRFID-enabled lane. Otherwise, the package is sent down a non-pRFID-enabled lane where it is manually receipted.

Each pRFID tag contains a small copper antenna – a small chip the size of a pin head – located in the center of the tag. When a shipment is received at DLA Distribution, and is identified as being pRFID enabled, the package is directed through a portal with an antenna that emits a radio wave. The pRFID tag absorbs the energy from the radio wave, which excites the tag. Once the frequency hits the pRFID tag, the tag emits back its identification. The identification is similar to a vehicle license plate. Each package's identification number is noted in the ASN, and once the package emits its individual number, the identification number and ASN are married in DSS. At this point, DLA Distribution recognizes the package as complete.

A complete package is diverted down a special pRFID-enabled lane that has a special reader and antenna included. The employee then slides the tote with the package inside of it onto a scale with a pRFID reader, and pushes a button to emit a radio pulse to excite the pRFID tag. DSS is then prepopulated with all vendor supplied shipment information, and the employee is ready to move on to the next receipt.

Advantages to PRR

The major advantage to the new PRR

process is time savings. Because the pRFID tag contains the Pin, Call, Cliin, or ASN, data, including all of the customer's information such as document number, shipment number, and Department of Defense Address Codes, the employee does not need to enter this information upon receipt into DSS. "Because of PRR, a 5.5 percent increase in receipts processed was realized, receipt revisions have been reduced by approximately 62 percent, and receipt cancellations have been reduced by approximately 83 percent, based on DLA Distribution San Joaquin's PRR implementation," said Blanks.

Another advantage to the PRR process is quality control and accuracy. Operators no longer have to match up shipments with the correct vendor. Because of this, there is a large reduction in the amount of errors and inaccuracy processed in the system.

Because of the time savings and increases in accuracy, DLA Distribution can concentrate on slower materiel that takes more time to receipt, such as redistribution orders and stock transfer orders.

Implementation at DLA Distribution

The PRR project is currently being rolled out across the DLA Distribution enterprise.

DLA Distribution San Joaquin, Calif., currently has eight lanes devoted to PRR. The project has been so successful, that the remaining eight receiving lanes have

also been outfitted with equipment to support PRR. While not all 16 lanes will be enabled at the same time, having all 16 lanes available to complete pRFID-enabled receipts will provide DLA Distribution San Joaquin, Calif., with the needed flexibility to provide optimal support.

Initially, the installation at DLA Distribution San Joaquin, Calif., provided some challenges. The portals were so powerful that they were reading from the next lane over, instead of the lane that the package was actually located in. Through some fine-tuning, this challenge was successfully overcome.

"The smart table idea we brought home from a site visit to Lackland, Air Force Base was instrumental in allowing us to completely eliminate the over reads we were experiencing," said Luis Avila, DLA Distribution San Joaquin, Calif., Systems Division. "Our DDJC Automated Materiel Handling System personnel were key to our success in the design and deployment of our smart tables. Without them, we could not have met our timelines nor drastically reduce the cost of the smart table to that of a commercial table. Commercial tables started in the \$4,000 to \$5,000 range, and we were able to deliver for \$351 per table, a significant savings to the government."

Because all vendor-supplied shipment information is prepopulated into the system, the operator learning curve for the PRR system is minimal. "One of our employees suffers from dyslexia, and being able to scan the pRFID tag vice keying the information in has eliminated keyboard errors for him," said Avila. "We are expecting to see greater production since we have eliminated half of the processing screens. We did this by moving data fields to screens that could accommodate, and most importantly, having the system processing behind the scene. This part of PRR is referred to as screen suppression."

The PRR project is continuing to move forward based on the successes of the previous installations. Completed installation at all Continental United States DLA Distribution depots is scheduled for completion by March 2011.